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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,998	06/29/2001	Franz Cemic	2098L/49970	5656

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EXAMINER

LAVARIAS, ARNEL C

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 04/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,998

Applicant(s)

CEMIC ET AL.

Examiner

Arnel C. Lavarias

Art Unit

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-- Th MAILING DATE of this communication app ars on the cov r sh et with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/28/04, 2/2/04, 2/17/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 3,4,7 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6 and 9-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/17/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The European Search Report dated 1/12/04 for Serial No. EP-01114954, listed in the 'Non-Patent Literature Documents' section of PTO-1449 has been lined through, as it is not prior art in and of itself. However, the substance of the European Search Report has been considered.

Response to Amendment

2. The amendments to the specification of the disclosure in the submission dated 2/2/04 are acknowledged and accepted. In view of these amendments, the objections to the specification in Section 3 of the Office Action dated 8/1/03 are respectfully withdrawn.
3. The amendments to Claims 1-2, 5-6 in the submission dated 2/2/04 are acknowledged and accepted.
4. The addition of Claims 9-12 in the submission dated 2/2/04 is acknowledged and accepted.

Response to Arguments

5. The Applicants argue that, with respect to Claims 1-2, Tsuji fails to teach or reasonably suggest an illumination device, as generally recited in the claimed combination set forth in Claims 1-2, the illumination device including an optical fiber bundle which is arranged as the optical waveguide, wherein the homogenizing optical

system homogenizes the nonuniform intensity distribution in the image field of the light emerging from the optical fiber bundle. The Examiner respectfully disagrees. Tsuji specifically discloses that an optical waveguide for the illumination device (See 4 in Figure 6) may be in the form of a single optical pipe or a bundle of plural optical pipes (See col. 5, lines 3-14). Further, the Examiner notes that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In the instant case, the Applicants provide arguments with respect to whether the optical waveguide provides homogeneous or inhomogeneous light distribution. However, Claims 1-2 only require an optical waveguide (See 4 in Figure 6; col. 5, lines 3-14 of Tsuji), an optical fiber bundle arranged as the optical waveguide (See 4 in Figure 6; col. 5, lines 3-14 of Tsuji), and a nonuniform intensity distribution in the image field of the light emerging from the optical fiber bundle (See col. 5, lines 15-43 of Tsuji). The Examiner notes that Applicants' remarks and submission (See Page 11, Exhibit B of Applicants' submission dated 2/2/04) provide evidence that the light emerging from the optical fiber bundle exhibits a nonuniform intensity distribution.

6. The Applicants argue that, with respect to Claims 5-6, Suzuki fails to teach or reasonably suggest a coordinate measuring instrument as generally recited in the claimed combination set forth in Claims 5-6, the coordinate measuring instrument including a detector device for determining the position of the feature, and a homogenizing optical system that homogenizes the nonuniform intensity distribution in the image field of the light emerging from the optical fiber bundle. After a review of the Suzuki reference, the

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Examiner agrees, and respectfully withdraws the rejections to Claims 5-6 in Section 6 of the Office Action dated 8/1/03.

7. Claims 1-2, 5-6, 9-12 are rejected as follows.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-2, 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsuji (U.S. Patent No. 6285855), of record.

Tsuji discloses an illumination device (See for example Figure 6) having a light source (See 1 in Figure 6); an optical waveguide (See 4 in Figure 6); a coupling-in optical system which couples the light of the light source into a first end of the waveguide (See 91, 92, 2, 3 in Figure 6); a coupling-out optical system which couples out the light emerging from a second end of the optical waveguide (See 5 in Figure 6); and an illumination optical system (See 93 in Figure 6) which receives the light emerging from the coupling-out optical system and illuminates an imaging field (See 94 in Figure 6), the illumination device further comprising an optical fiber bundle which is arranged as the optical waveguide (See 4 in Figure 6; col. 4, line 43-col. 5, line 28); and a homogenizing

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optical system which is arranged between the coupling-out optical system and the illuminating optical system (See 7 in Figure 6), wherein the homogenizing optical system homogenizes the nonuniform intensity distribution in the image field of the light emerging from the optical fiber bundle (See col. 5, lines 29-43), wherein the homogenizing optical system comprises a micro-honeycomb condenser (See 7 in Figure 6; col. 5, lines 29-43) and a lens member (See 8 in Figure 6) which superimposes the exit opening of the fiber bundle in an intermediate image plane to form a homogeneous intermediate image (See for example 9 in Figure 6).

10. Claims 1-2, 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakanishi et al. (JP04196280), of record.

Nakanishi et al. discloses an illumination device (See for example Figure 1) having a light source (See 1 in Figure 1); an optical waveguide (See 3 in Figure 1); a coupling-in optical system which couples the light of the light source into a first end of the waveguide (See 2, 4 in Figure 1); a coupling-out optical system which couples out the light emerging from a second end of the optical waveguide (See 7 in Figure 1); and an illumination optical system (See 11 in Figure 1) which receives the light emerging from the coupling-out optical system and illuminates an imaging field (See 12 in Figure 1), the illumination device further comprising an optical fiber bundle which is arranged as the optical waveguide (See 3 in Figure 1; Abstract); and a homogenizing optical system which is arranged between the coupling-out optical system and the illuminating optical system (See 8 in Figure 1), wherein the homogenizing optical system homogenizes the nonuniform intensity distribution in the image field of the light emerging from the optical

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fiber bundle (See Abstract), wherein the homogenizing optical system comprises a micro-honeycomb condenser (See 7 in Figure 1) and a lens member (See 9 in Figure 1) which superimposes the exit opening of the fiber bundle in an intermediate image plane to form a homogeneous intermediate image (See for example region near 10 in Figure 1).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-2, 5-6, 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (U.S. Patent No. 6456377 or Suzuki '377) in view of Suzuki (U.S. Patent No. 5608575 or Suzuki '575), of record.

Suzuki '377 discloses an exposure system, which incorporates a coordinate measuring instrument including an illumination device (See for example Figures 1-2), the coordinate measuring device having a horizontally X-Y displaceable measurement stage (See 50 in Figure 1) for receiving a substrate (See W in Figure 1; or 62 in Figure 2) with a feature (See 64 in Figure 2; col. 14, line 58-col. 15, line 28) that is to be measured; an illumination system; and a detector device for determining the position of the feature (See 100 in Figure 1; 70 in Figure 2); and the illumination device having a light source (See 12, 14 in Figure 1), and an illumination optical system (See 40a, 40b, PL in Figure 1) which receives the light emerging from the light source and illuminates an imaging field;

the illumination device further comprising a homogenizing optical system which is arranged between the light source and the illuminating optical system (See 16 in Figure 1), wherein the homogenizing optical system homogenizes the nonuniform intensity distribution in the image field of the light emerging from the light source (See col. 9, line 66-col. 10, line 47; col. 14, lines 27-50), wherein the homogenizing optical system comprises a micro-honeycomb condenser (See 16 in Figure 1; col. 9, line 66-col. 10, line 47; col. 14, lines 27-50) and a lens member (See for example 34a, 34b, 38 in Figure 1) which superimposes the exit opening of the fiber bundle in an intermediate image plane to form a homogeneous intermediate image. Suzuki '377 lacks an optical fiber bundle; a coupling-in optical system which couples the light of the light source into a first end of the waveguide; and a coupling-out optical system which couples out the light emerging from a second end of the optical waveguide. However, Suzuki '575 teaches a similar exposure system, including an illumination device (See Figure 4), the device having a horizontally X-Y displaceable measurement stage (See 45 in Figure 4) for receiving a substrate with a feature that is to be measured (See 43 in Figure 4); an illumination system; and a detector device (See 47, 48 in Figure 4); and the illumination device having a light source (See 11, 12 in Figure 4); an optical waveguide (See 15 in Figure 4); a coupling-in optical system which couples the light of the light source into a first end of the waveguide (See 12, 13, 14 in Figure 4); a coupling-out optical system which couples out the light emerging from a second end of the optical waveguide (See 16a, 16b, 17, 18 in Figure 4); and an illumination optical system (See 28, 42 in Figure 4) which receives the light emerging from the coupling-out optical system and illuminates an imaging field

(See 41, 46a, 46b, 43 in Figure 4); the illumination device further comprising an optical fiber bundle which is arranged as the optical waveguide (See 15 in Figure 4; col. 10, lines 35-58); and a homogenizing optical system which is arranged between the coupling-out optical system and the illuminating optical system (See 19 in Figure 4), wherein the homogenizing optical system homogenizes the nonuniform intensity distribution in the image field of the light emerging from the optical fiber bundle (See col. 10, line 59-col. 11, line 35), wherein the homogenizing optical system comprises a micro-honeycomb condenser (See 19 in Figure 4; col. 11, lines 19-35) and a lens member (See for example 22 in Figure 6) which superimposes the exit opening of the fiber bundle in an intermediate image plane to form a homogeneous intermediate image (See for example 24 in Figure 4; col. 12, lines 24-50). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the device of Suzuki '377 further include an optical fiber bundle; a coupling-in optical system which couples the light of the light source into a first end of the waveguide; and a coupling-out optical system which couples out the light emerging from a second end of the optical waveguide, as taught by Suzuki '575, for the purpose of diffusing the light emitted from the light source, while allowing ease in alignment in routing the light within the optical system.


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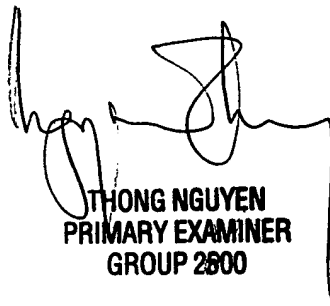
Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 8:30 AM - 5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Arnel C. Lavarias
4/20/04


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